Claims

1. An apparatus for degassing a liquid (2) in a liquid transportation line comprising a supply conduit (6) for supplying the liquid (2) to a conditioning container (1), a means (13) for generating a low pressure in the conditioning container (1) and a supply container (3) being arranged downstream of the conditioning container (1) and serving for storing the degassed liquid (2').

2. The apparatus according to claim 1, wherein the conditioning container (1) comprises a heater (5) for the liquid (2).

3. The apparatus according to any one of claims 1 or 2, wherein the conditioning container (1) comprises a supply conduit (6) having a valve (8) as well as a discharge conduit (7) having a valve (9).

4. The apparatus according to claim 3, wherein the supply conduit (6) and the discharge conduit (7) are connected with the bottom (1a) of the conditioning container (1).

5. The apparatus according to any one of claim 1 to 4, wherein the low pressure is generated by a prevacuum pump (13).

6. The apparatus according to claim 5, wherein the prevacuum pump comprises a Venturi nozzle.

7. The apparatus according to claim 5 or 6, wherein the low pressure is 10 to 900 mbar, preferably 10 to 100 mbar.

8. The apparatus according to any one of claims 1 to 7 comprising a temperature sensor (10) for controlling the heater (5).

9. The apparatus according to any one of claims 1 to 8 comprising a liquid indicator (11) in the conditioning container (1) and/or the supply container (3).

10. The apparatus according to any one of claims 1 to 9, wherein the discharge conduit (7) of the conditioning container (1) and an inlet conduit (12) of the supply container (3) are connected with each other via the valve (9).

11. The apparatus according to any one of claims 1 to 10 comprising a pump (4) for pumping the liquid from the supply container (3) into an outlet conduit (4d).

12. The apparatus according to claim 11, wherein the pump is a submerged pump, preferably a plunger pump (4) the piston (4a) and the cylinder (4b) of which are submerged below the surface (2a) of the liquid (2') during operation.

13. The apparatus according to claim 12, wherein the plunger pump (4) comprises a stationary piston (4a) and a cylinder (4b) which is movable with respect to the piston (4a).

14. The apparatus according to claim 12 or 13, wherein the piston (4a) has a through-opening (4c) which is connected with the outlet conduit (4d).

15. The apparatus according to claim 12, 13 or 14, wherein the cylinder (4b) comprises a check-valve (4e) which opens and allows liquid (2') to enter the cylinder (4b) when the cylinder (4b) moves away from the piston (4a) and closes when the cylinder (4b) moves towards the piston (4a), so that the liquid (2') in the cylinder (4b) is pressed through the opening (4c) into the outlet conduit (4d).

16. The apparatus according to claim 12, 13, 14 or 15, wherein there is an atmospheric pressure in the supply container (3).

17. The apparatus according to any one of claims 12 to 16, wherein an inlet conduit (12) of the supply container (3) is arranged below the liquid level (2a'), preferably at the bottom (3a) of the supply container (3).

18. A method for bubble-freely pumping a liquid by means of the apparatus according to any one of claims 1 to 17, comprising the following steps:

(a) supplying the liquid (2) into the conditioning container (1);

(b) degassing the liquid (2) by adjusting a low pressure in the conditioning container (1);

(c) transferring the liquid (2) from the conditioning container (1) into the supply container (3).

19. The method according to claim 18 which is carried out by means of the apparatus according to any one of claims 12 to 17 comprising a plunger pump (4) in the supply container (3), wherein by moving the cylinder (4b) away from or towards the piston (4a) the check-valve (4e) opens or closes and liquid (2') enters the cylinder (4b) or is pumped through the opening (4c) into the outlet conduit (4b).

20. The method according to claim 18 or 19, wherein in method step (b) the liquid (2) is degassed during a time period of 3 to 8 minutes.

21. The method according to claim 18, 19 or 20, wherein the liquid (2) in the conditioning container (1) is heated.

22. The method according to claim 18, 19, 20 or 21, wherein due to a low pressure the liquid (2) is sucked into the conditioning container (1) via the conduit (6).

23. The apparatus and the method according to any one of claims 1 to 17 or 18 to 22, respectively, wherein the liquid (2) is a lacquer or a bonding agent.

24. Use of the apparatus and the method according to claim 23 during the application of a lacquer or a bonding agent onto a substrate in the form of a data carrier such as a CD, a DVD or a DVD half.